

A NEW TRIBE FOR *CORYNOTHRIX BOREALIS* TULLBERG 1876
AND COMPLEMENTS TO ITS DESCRIPTION
(COLLEMBOLA: ENTOMOBRYIDAE:
ORCHESELLINAE)

JOSÉ A. MARI MUTT

Department of Biology, University of Puerto Rico, Mayagüez, Puerto Rico 00708.

Abstract.—**Corynotrichini**, a new tribe of the subfamily Orchesellinae, is proposed for *Corynotrix borealis* Tullberg 1876. The new tribe differs from the closest taxon, the Orchesellini, by the presence in *C. borealis* of four antennal segments, type of labral papillae, structure of ungues, ciliated prelabral and first ten labral setae, and corpus of tenaculum with four setae. Details are added to the previous descriptions of this species based on specimens from Banks Island, Northwest Territories, Canada.

The monotypic genus *Corynotrix* was erected by Tullberg (1876) for specimens from Novaya Zemlya, USSR. Schött (1893, 1923), based on specimens from the same island, added some details to the original description. Martynova (1970) thoroughly described the genus and species using individuals from Wrangel Island and the mountains of Kirgiz SSR. Martynova et al. (1973) added some details to the previous description using material from Wrangel Island. Christiansen and Bellinger (*in press*) present a diagnosis and short description, adding some new data from specimens collected in Alaska (Chandler Lake, Pt. Barrow) and Northwest Territories (see material examined).

The genus *Corynotrix* has always been regarded as valid with the exception of Gisin (1960) who, albeit preceded by a question mark, included the name among the synonyms of *Orchesella* Templeton. The systematic position of the genus, however, has been and still is the source of some confusion. Some authors (e.g. Salmon, 1951) placed it in the subfamily Isotominae of the family Isotomidae based on general appearance, while the current trend is to place it in the family Entomobryidae, on the basis of the presence of macrochaetae and the trochanteral organ (e.g. Gisin, 1944; Salmon, 1964; Martynova, 1970; Christiansen and Bellinger, *in press*).

Szeptycki (1979) proposed a sound classification of the Entomobryidae

based on a number of characters including chaetotaxy. He divided the taxon into four subfamilies (Orchesellinae, Entomobryinae, Seirinae, Lepidocyrtinae) and considered the Orchesellinae as the most primitive and hence closest to the Isotomidae. Regarding the position of *Corynothrix* in this scheme, Szeptycki (1979: 116) stated ". . . and *Corynothrix* Tullberg 1976 [sic], if this is actually distinct from *Orchesellides* Bon., seem to belong in the Orchesellinae."

For the last five years I have studied the systematics of the Orchesellinae but had set aside *Corynothrix borealis* on account of its four-segmented antennae; membership in the subfamily being reserved for species with five- or six-segmented antennae. It is evident, however, that the closest relatives to *Corynothrix* are in the Orchesellinae, tribe Orchesellini, which includes *Orchesella* Templeton and *Orchesellides* Bonet.

Yosii (1942) considered *Orchesellides* as a junior synonym of *Corynothrix*. Yosii (1966) used *Orchesellides* but continued to point out the possible identity with Tullberg's genus. Martynova (1970) dealt with this problem in detail. She concluded that both genera were distinct and listed six differences between both genera to which I can now add two more: The presence of four setae on the corpus of the tenaculum vs. one seta in *Orchesellides* and the four prelabral setae and ten setae of the first two labral rows ciliated in *Corynothrix* and smooth in *Orchesellides* (data available only for *O. poli* Yosii and *O. kabulensis* Yosii).

Szeptycki (1979: 115) presented a series of features of chaetotaxy that are shared by members of the Orchesellinae (based on *Orchesella*, *Orchesellides*, and *Heteromurus*). The following are present in *Corynothrix* (others could not be verified): large number of macrochaetae in the L area of the mesonotum, scarcity of macrochaetae in the medial areas of Th. II and III, and the absence of accessory setulae around the trichobothria. The clothing of *C. borealis* is very similar to that of the Orchesellini and consists of very numerous ciliated macro- and microchaetae. There are no clearly differentiated multiplsets in the area Th. II A, although there is a tendency for setae to be arranged in this way.

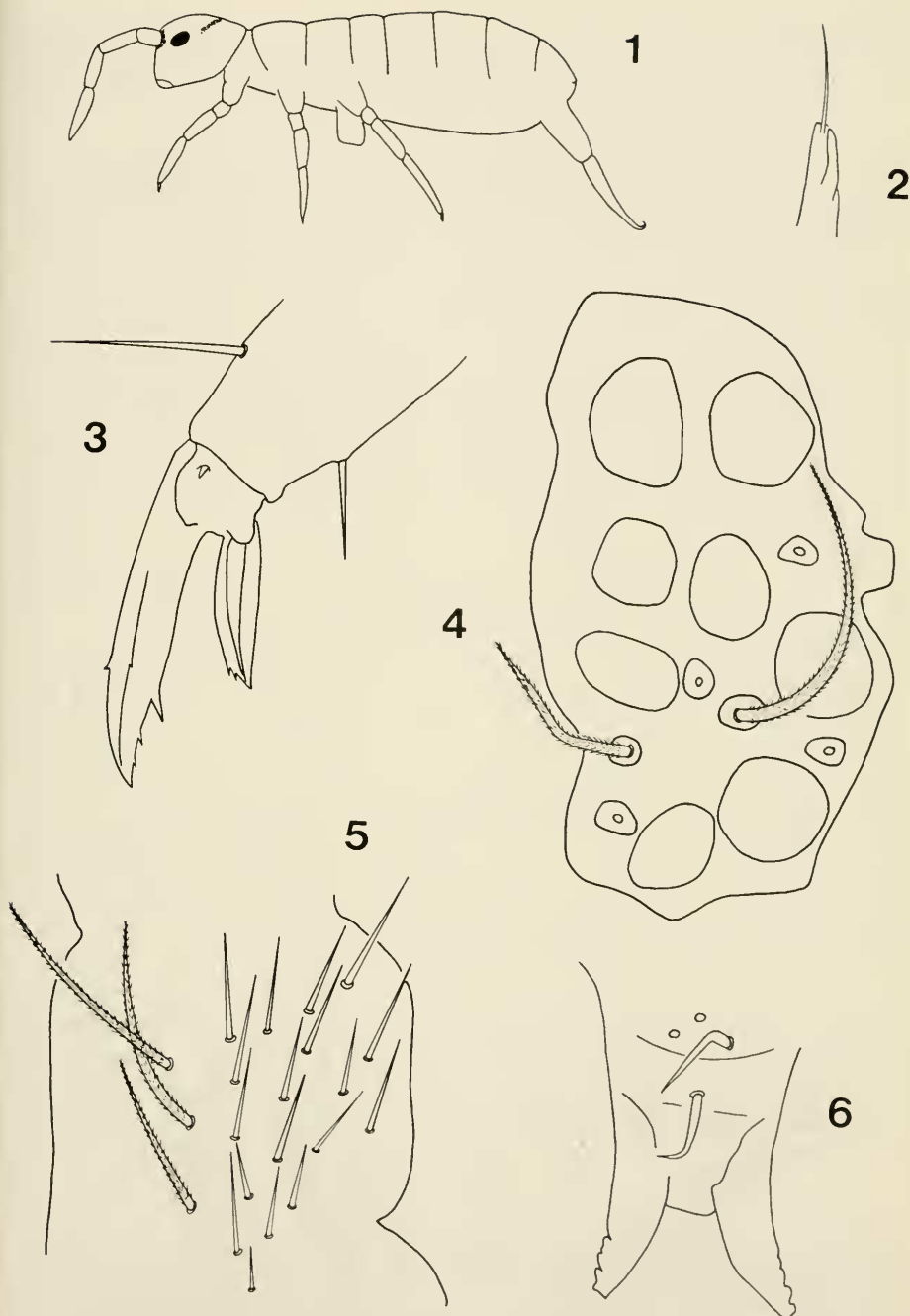
Although quite similar to other Orchesellinae, *Corynothrix* presents a number of unique features (see diagnosis below) that justify the establishment of a new tribe, the Corynotrichini.

Subfamily Orchesellinae Börner 1906: 162

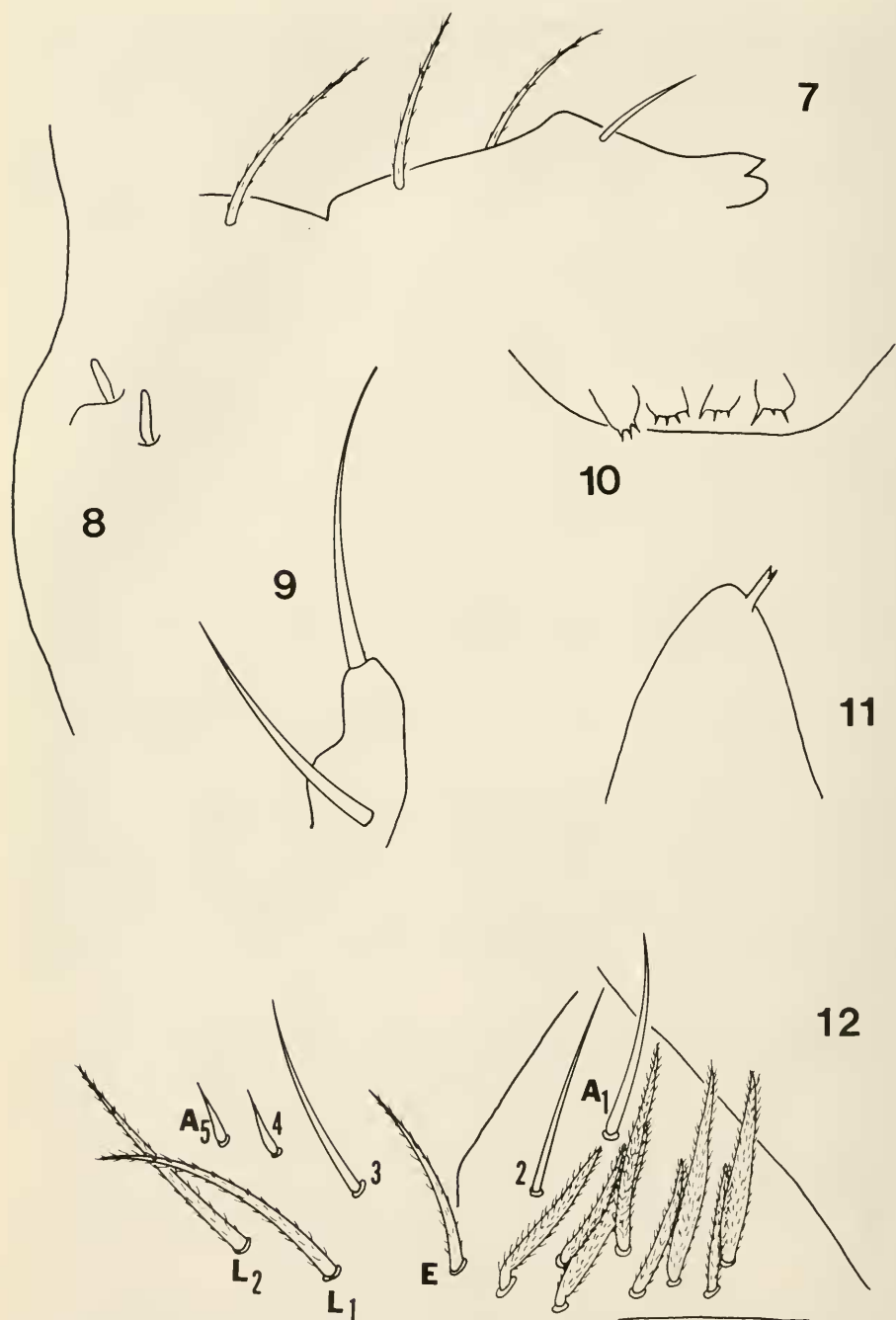
Entomobryids with 4-, 5-, or 6-segmented antennae and 4th abdominal segment less than $2\times$ as long as 3rd.

Corynotrichini Mari Mutt, NEW TRIBE

The tribe houses one genus, *Corynothrix* Tullberg 1876, and may be distinguished from other tribes by the presence of four antennal segments, type



Figs. 1-6. *Corynothrix borealis*. 1, Habitus. 2, Outer labial papilla with its differentiated seta. 3, Metathoracic claw. 4, Right eye patch. 5, Trochanteral organ. 6, Tenaculum.



Figs. 7-12. *Corynothrix borealis*. 7, Lateral view of labrum. 8, Ant. 3 sense organ. 9, Maxillary palp. 10, Labral papillae. 11, Apex of Ant. 6 with pin seta. 12, Labial chaetotaxy.

of labral papilla (Fig. 10), morphology of ungues (inner lamellae fused at level of proximal pair of teeth), ciliated prelabral and first ten labral setae, and corpus of tenaculum with four setae.

Corynothrix borealis Tullberg 1876: 34

Complements to the description.—Habitus typically isotomid (Fig. 1; see also Tullberg 1876: Pl. IX, Fig. 13 and Martynova et al. 1973: 89, Fig. a). Dorsum of head and body covered by numerous ciliated macro- and microchaetae, without scales. Lasiotrichia not surrounded by differentiated setae, apparently absent from head. Length up to 2.1 mm (up to 3 mm according to Christiansen and Bellinger, *in press*). Color yellow-green throughout but for violet eye patches, antennal bases, area between antennal bases, and V-shaped spot dorsally on middle of head. Antennae 4-segmented, about $\frac{1}{3}$ length of head and body combined. Apex of Ant. 6 with pin seta (Fig. 11). Ant. 3 sense organ (Fig. 8) of 2 fairly large pegs. Postantennal organ absent. Eyes 8 and 8 (Fig. 4), eyes g and h not greatly reduced in diameter. Area surrounding bases of interocular setae depigmented, giving impression of additional eyes. All 4 prelabral and 10 setae of first 2 labral rows lightly ciliated, 4 setae of apical row smooth (Fig. 7). Labral papillae as in Fig. 10. Setae of maxillary palp subequal in length (Fig. 9). Differentiated seta of outer labial papilla (Fig. 2) very large, reaching apex of its papilla. Labial chaetotaxy as in Fig. 12; setae A_1 – A_5 smooth, A_4 and A_5 about $\frac{1}{3}$ length of A_3 . All setae of posterior row ciliated but seta E less conspicuously so. Posterior row up to E with 7–9 setae. All setae of venter of head ciliated. Trochanteral organ as in Fig. 5. Tibiotarsi devoid of smooth setae with exception of opposite seta to tenent hair on metathoracic legs. Claw as in Fig. 3; ungues with 2 distal outer teeth, inner margin with 3 unpaired teeth. Unguiculus of metathoracic legs with none or up to 3 small distal inner teeth. Unguiculi of pro- and mesothoracic legs toothless. Tenent hair apically lanceolate. Rami of tenaculum with 4 teeth, corpus with 4 smooth setae (Fig. 6). Furcula devoid of smooth setae or spines. Mucro with 2 teeth and basal spine.

Material examined.—Canada: Northwest Territories, Sachs Harbor, Banks Island, July 5, 1970, on flowers of *Lesquerella arctica*, Kevan, coll. 9 individuals. Three of the specimens are in the author's collection, the others are in the collection of Kenneth A. Christiansen, Department of Biology, Grinnell College, Grinnell, Iowa.

LITERATURE CITED

- Börner, C. 1906. Das System der Collembolen, nebst Beschreibung neuer Collembolen des Hamburger Naturhistorischen Museums. Mitt. Naturhist. Mus. Hamburg 23: 147–188.
- Christiansen, K. A. and P. F. Bellinger. *In press*. The Collembola of North America, north of the Rio Grande. Grinnell College, Iowa.

- Gisin, H. 1944. Hilfstabellen zum Bestimmen der holarktischen Collembolen. *Verh. Naturforsch. Ges. Basel* 55: 1-130.
- . 1960. Collembolenfauna Europas. *Ed. Mus. Hist. Nat. Genève*, 312 pp.
- Martynova, E. F. 1970. New and little-known species of Isotomidae and Entomobryidae (Collembola, Insecta). *New and Little Known Species of Siberian Fauna, Acad. Sci. USSR, Siberian Branch, Inst. Biol. Publ. House Nauka Novosibirsk* 3: 6-15. (In Russian)
- Martynova, E. F., K. B. Gorodkov, and V. G. Tshelnokov. 1973. Springtails (Collembola) from Wrangel Island. *Entomol. Obozr.* 52(1): 76-93. (In Russian)
- Salmon, J. T. 1951. Keys and bibliography to the Collembola. *Zool. Publ. Victoria Univ. Coll.* 8: 1-82.
- . 1964. An index to the Collembola. *R. Soc. N.Z. Bull.* 7: 1-651.
- Schött, H. G. 1893. Zur Systematik und Verbreitung palearktischer Collembolen. *K. Sven. Vet. Akad. Handlingar* 25(2): 1-100.
- . 1923. Collembola. *Rep. Sci. Results Norweg. Exped. Novaya Zemlya, 1921, No. 12, Soc. Arts Sci. Kristiania, 1923*, 14 pp.
- Szeptycki, A. 1979. Chaetotaxy of the Entomobryidae and its phylogenetical significance. *Morphosystematic studies on Collembola, IV. Polska Akad. Nauk Zaklad Zool. System. I Doświadczalnej. Państwowe Wydawnictwo Naukowe, Warszawa, Krakow*, 219 pp.
- Tullberg, T. 1876. *Collembola borealia-Nordiska Collembola. Öfv. Kongl. Vet.-Akad. Förh. Stockholm No. 5: 23-42*, 4 plates.
- Yosii, R. 1942. Japanische Entomobryinen (Ins., Collemb.). *Archiv. Naturg., N. F.* 10(4): 476-495.
- . 1966. On some Collembola of Afghanistan, India and Ceylon, collected by the Kuphe-Expedition, 1960. *Results Kyoto Univ. Sci. Exped. Karakoram and Hindukush, 1955*, 8: 333-405.